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MAMMALIAN DISTRIBUTION.

The Geography of Mammals. By W. L. and P. L. Sclater. Pp. xviii + 335. Illustrated. (London: Kegan Paul, Trench, Trübner, and Co., Ltd., 1899.)

THIS work may be best described as being of an extremely conservative nature; so conservative indeed that the authors seem under the impression that scarcely any improvement or alteration in views advanced many years ago can by any possibility be rendered necessary through the general progress of science and the work achieved by other investigators. It may likewise be described as a unionist production, for, in addition to the names of the two authors which appear on the title-page, we are told in the preface that two other gentlemen have assisted in the compilation of the lists of genera. Unfortunately, although there has doubtless been "a union of hearts," a union of pens is conspicuous by its absence; so that, as will be shown in the course of this notice, there are many glaring incongruities between different portions of the work, while the want of correspondence in the nomenclature employed can scarcely be designated as anything less than appalling.

The work really consists of three distinct sections. First, we have seven chapters by Mr. W. L. Sclater on the terrestrial regions into which the globe may be mapped out from the distribution of its mammals. Secondly, there is a chapter by the senior of the two authors on the marine regions indicated by the distribution of cetaceans and sirenians. And, thirdly, the seven last chapters of the book, by the same hand, treat of the distribution of the various orders of mammals.

As the results of their investigations, both from the strictly geographical and the purely zoological standpoint, the authors are convinced that the regions originally proposed by the senior of the two, chiefly on the evidence of passerine birds, are also, in the main, those best adapted to show the present distribution of mammals. For reasons which will be apparent to many of his readers, the present reviewer has no intention on this occasion of recapitulating the arguments which have been used against some portions of this grouping. It will suffice to say that he does not agree with them; and criticism may well be left to American zoologists, who may be trusted to fight strongly in defence of their own views, which receive, if we may say so, somewhat scant justice at the hands of the Messrs. Sclater. Taking, then, the groupings of the regions as they stand, attention may be concentrated on some of the details of the book before us.

Perhaps the most satisfactory feature of the book is the prominence given to the three primary divisions—Arctogæa, Neogæa, and Notogæa—into which nearly all authorities are agreed that the land surface of the globe should be parcelled out from a distributional point of view. We should, however, have much preferred seeing these great divisions indicated in the general map forming the subject of Plate I.; and the component "regions" into which the first is subdivided marked by colour-

shadings. As it is, the essential difference between the single regions respectively constituting the two latter divisions and those included in the first are totally unapparent. One very distinct improvement on all previous works on the subject we are happy to recognise. This is the separation of Celebes from the Australian and its transference to the Oriental region. But we think the authors have scarcely gone far enough, and that Timor and the Moluccas might likewise have shared in the same westerly shift. In any case, it seems scarcely justifiable to retain the term "Wallace's line" solely for the small channel separating Bali from Lombok, seeing that it is generally taken to include the one between Borneo and Celebes.

Admitting that the authors and the present reviewer "agree to differ" in regard to the number of regions, the work would have had a greater value had it been a thoroughly up-to-date and trustworthy *résumé* of what we take leave to call the old-fashioned view. But is this really the case? As is stated in the preface, the seven chapters by the junior author first made their appearance in the *Geographical Journal* between the years 1894 and 1897. They are now reprinted "with some slight alterations." Bearing in mind the rapid movements of science in all its branches, to which allusion is likewise made in the preface, is it, we ask, fair to the author himself and the public at large to make what may have been very good in its way in 1894 do duty in 1899?

To take one instance out of many, we find it stated on pp. 53 and 54 that "there can be *no doubt*¹ that the Galapagos have never, at any period of their history, been joined to the mainland." Now, so far back as 1892 (so that, by the way, the statement might have been included in the original paper) the late Dr. George Baur² wrote the following sentence:—"That it has been made probable that the Galapagos are of *continental* origin, I consider one of the most important results of the expedition." And this view Dr. Baur has subsequently endeavoured to develop in not less than five separate communications. Of course the authors have every right to take their own view, but they have no justification either to ignore the existence of an opposite opinion, or for the use of the words "no doubt."

Dogmatism is indeed much too apparent throughout the book. For example, on p. 217 we find the statement (by the senior author) that certain views

"would tend in favour of the now generally accepted doctrine that the principal masses of land and water are not of modern origin, but have existed in *their present shapes throughout all ages*."

In regard to this astounding statement, we may well ask whether the author is acquainted with a work which has attained some celebrity on the continent—to wit, the second edition of Neumayr's "Erdegeschichte." If not, his attention may be directed to the map on p. 203 of the second volume; and if he can say that the continents then retained "their present shapes," he evidently puts a different interpretation on the word shape than the one to which we are accustomed.

But without the aid of foreign works the author may,

¹ The italics in this and other quotations are the reviewer's.

² Proc. Amer. Antiquarian Soc. for 1891.

we think, in this connection be "hoisted with his own petard." On turning to pp. 236-7 we find the following statement :—

"This fact would seem to show that the ancient 'Lemuria,' as the hypothetical continent which was originally the home of the Lemurs has been termed, *must* have extended across the Indian Ocean and the Indian Peninsula to the further side of the Bay of Bengal and over the great islands of the Indian Archipelago."

Is this quite a case of the retention of their present shapes by the continents?

But there is more to be said in regard to this paragraph, and especially in respect to the use of the objectionable *must*. Turning back to pp. 149-50, we find the junior author discussing the theories that have been advanced as to a direct communication between Africa and India across the Indian Ocean. As the result of his own criticism we have the following very definite statement :—

"This land connection may be of use in explaining the distribution of some of the lower vertebrates, but is of *no assistance so far as the Mammals are concerned*; because in those early times it is probable that none of the families or even orders of our present Mammals had arisen."

And yet in the passage previously quoted we are calmly told by the senior author that the old home of the Lemurs *must* have extended across the Indian Ocean! Comment is superfluous!

Possibly if this were a single isolated instance it might be passed over as one of those unfortunate slips to which the most careful of us are occasionally liable. But it is by no means so; and, out of several others, we select another instance.

On p. 216 Dr. Sclater, in treating of seals, writes that

"In former ages there must have been some barrier in the Atlantic which did not exist in the Pacific to stop their progress northwards. The only barrier one can imagine that would have effected this must have been a land uniting South America and Africa across which they could not travel."

Apart from the question whether such a barrier accords with the dictum as to the retention of their shape by the continents at all periods of the earth's history, we find Mr. W. Sclater making the following very definite statement on p. 55 :—

"Everything points to the conclusion that during a long geological age, probably *throughout the greater part of the Tertiary period*, *South America was entirely isolated from the rest of the world*."

If, therefore, an Atlantic barrier stopped the northward progress of the seals, it must have existed, at the very latest, in the Lower Eocene period; and at present we are unaware of the existence of seals previous to the Miocene!

The truth is (and there are occasions when plain-speaking is necessary) neither of the authors, nor the two gentlemen who have assisted them, have the slightest practical acquaintance with palæontology, and (to use a word "made in Germany") *erdgeschichte*. And they would have been well advised had they left such subjects severely alone, and made what they could out of the present distribution of animals. That a true geographical

scheme of distribution can be made on such knowledge alone we are not prepared to admit; but that is a detail.

As an example of palæontological ignorance, we may refer to the twice-repeated statement (pp. 189 and 195) that fossil camels are unknown in Europe; and yet one from Rumania has been described some time since. Again, on p. 80 we are told that opossums occur in the Santa Cruz beds of Patagonia; and here, as well as on p. 9, they are consequently regarded definitely as members of the endemic South American fauna. And yet on p. 156 it is stated that the Virginian opossum "may be a survivor rather than an intruder in North America." On p. 323 we meet with the statement that whether the same animal is certainly indigenous in North America, "or whether it may not have extended its range northwards from Central America in more recent times, it is hard to say." All this confusion arises from insufficient acquaintance with the facts; what we believe these to be need not be mentioned here.

Allusion has already been made to the want of reference to modern literature in the case of the Galapagos islands, and this is also noticeable in other cases. For instance, what can be thought of the omission of all reference to Dr. Merriam's papers on distribution in the introductory chapter? Here, too, mention should have been made of Mr. Pocock's distribution of Arachnida, seeing that it takes much account of other groups. Mr. Baldwin Spencer's important observations on the origin of Australian Mammals, published in the "Results of the Horn Expedition," are likewise unnoticed; as are those of Dr. Schärff on that of the European fauna. Somewhat curiously, too, a small work published a few years ago on mammalian distribution, which has been deemed worthy of translation into German, likewise receives no recognition.

In addition to all the foregoing (to say nothing of other) inconsistencies and omissions, the present work is, unfortunately, open to very severe criticism on account of carelessness in proof-reading, and the lack of correlating the names used in the later pages with those that precede them. Since the book appears to be written to a certain extent for amateur zoologists, these errors are the more to be deprecated. To quote all that we have detected would be impossible, and a few must accordingly suffice.

To the beginner it will be decidedly puzzling to reconcile the statement on p. 2, that mammals may be divided into eleven orders, with the one on p. 219 that the number of such divisions is fourteen; more especially as the monkeys are classed under the name Primates in the one place, and as *Quadrumania* in the other. Again, the uninitiated will be somewhat disconcerted to find the dormice figuring as *Myoxidae* on p. 182, and *Gliridae* on p. 276. Neither is it conducive to clearness to find the Picas described as *Lagomys* on p. 166, *Ochotoma* on p. 274, and *Ochotona* on p. 281. Minor discrepancies in the spelling of family and generic names, such as *Phyllostomatidae* on p. 265 against *Phyllostomidae* on p. 269, *Pteropidae* on p. 64 against *Pteropodidae* on p. 161, and *Haplodon* on p. 159 against *Haplodontia* on p. 272, are so numerous that the corre-

spondences are almost in a minority when compared with the discrepancies. More serious is *Hydropotes* on p. 139 against *Hydrelaphus* on p. 296. But the culmination is reached when we find, pp. 115-6, *Otocyon* twice identified with the Cape hunting-dog, and, p. 313, the giant *Armadillo* miscalled the giant *Kangaroo*!

With regard to the authors' view on nomenclature, which we venture to regard, with certain curious exceptions, as somewhat old-fashioned, it is not our intention to offer any general criticism on this occasion. We may, however, point out that in rejecting the earlier *Mazama* in favour of the later *Cariacus* for the name of the American deer, they are led into a difficulty when they come to sub-genera; *Dorcelaphus* (a sub-genus) antedating *Cariacus* (the genus)! Moreover, whereas they term the guemals *Xenelaphus* on p. 297, the same animals are designated *Furcifer* on p. 78.

With the statement that the chapter on marine regions is a new feature in books of this nature, and that those by Dr. Sclater on the distribution of the various mammalian families and genera will be found of the greatest value to students, the latter half of the book must be dismissed without further notice.

A large number of figures, for the most part specially prepared for it, illustrate the volume; and to the excellence of these we are glad to be able to testify. The maps, too, which are numerous, are all that can be desired to illustrate the text. And here it may be mentioned that in the majority of instances the sub-regions are well determined, and their distinctive faunas well described. The portion of the work relating to these must, indeed, claim a high value for students. We cannot, however, but regret that the authors have not seen their way to follow Mr. W. T. Blanford in the recognition of a Tibetan sub-region, the animals of that area being of so remarkably isolated a type.

Throughout the foregoing criticisms it will be noticed that we have studiously avoided bringing forward our own views, and have been content to call attention to the discrepancies and misstatements in those of the authors. Had the authors taken more pains in bringing their subject up to date, and did they possess (if we may say so) the all-round knowledge necessary to the proper fulfilment of their task, the volume, as an expression of what we regard as somewhat old-fashioned views, might have been worthy of higher commendation than we can venture to bestow.

R. L.

ANTIQUITIES FROM BENIN.

Antiquities from the City of Benin, &c., in the British Museum. By C. H. Read and O. M. Dalton. Pp. 61 + Plates 32. (London: British Museum, 1899.)

THE real interest in the finding of the Benin bronze castings centres in the fact that a negro people seem at one time to have been able to produce bronze work showing great skill in manufacture, coupled with indications of a considerable amount of knowledge of art. The question how the craft was learned immediately suggests itself. Messrs. Read and Dalton appear (p. 16) to accept the statement of the natives (p. 6) that it was introduced by the Portuguese, but further on (p. 19)

they acknowledge that it is "not easy to solve how far Europe is responsible for the art of metal casting in West Africa." From what may be called internal evidence, we may reasonably suppose that some of the best castings date back to the end of the fifteenth or the beginning of the sixteenth century. If the Portuguese introduced the art we should expect that some specimens of Portuguese work of that date, and of equal merit, should be found in our museums. So far no such evidence is forthcoming. There is, however, no reason why the art should not have been in existence before the arrival of the Portuguese amongst the Bini in the same way as the domestic architecture in Benin and the surrounding country is most probably indigenous, or in the same way as the decorative art of the Ashantis is indigenous in so far as our knowledge goes. In all probability, the solution of the question will be found to lie in the fact that the existence of the art antedates the arrival of the Portuguese, who, however, may have given it considerable impetus. Yet it must not be taken for granted that the Portuguese were the only people who influenced the art, for there is plenty of evidence pointing to other influences, and we can rest assured that, amongst a people so fond of trade as the African negroes, trade objects would be numerous, and these would leave their impress behind them. For instance, an almost exact copy of a spiral bracelet from Benin was brought many years ago from Tunis, and is now in the Blackmore Museum, while its prototype is to be found at the present day on the banks of the Upper Congo.

From a time shortly subsequent to the arrival at the British Museum of the large collection of these bronze castings, the authorities prohibited any student from taking notes, on the plea that they intended to publish a work on the collection. The work is now before us. It consists of an historical introduction with a descriptive summary, for purposes of comparison, of the Yoruba gods taken from Burton instead of from Ellis's later and more comprehensive account, a chapter each on the ivory work, the metal work, the early Europeans, and on dress, ornament and weapons, as exemplified by the specimens in the collection. The illustrations are fair, but some—as, for instance, those of the ivory tusks and a king's or chief's helmet—are reproduced on too small a scale to be of much assistance to the student. It is to be regretted that the authors have limited themselves to deal solely with the specimens in the British Museum collection. The museum possesses a unique collection of the bronze castings used as historical or decorative plates on the pillars of the king's compounds, but it possesses very few of the numerous domestic and other utensils, many likewise unique, which have from time to time been on sale in London. In other words, the collection is not a representative one, as is, for instance, that of General Pitt-Rivers at Farnham. The opportunity for a comparative study of the objects *inter se* is impossible, and the student will therefore have to go to other museums to complete his studies. However, even restricted as the work is in its scope, the monograph will always be found useful, and the authors are to be congratulated on a good piece of work.

H. LING ROTH.